Power Integrations

Ac-ac adapters should be included in the spec as they are used in high volume products such as: cordless phones, dust-busters, toys. It's actually easier for an ac to ac adapter to be efficient since rectification losses are moved out of the power supply and into the product. Not including them creates a loophole for those who don't want to meet the spec (manufacturers may switch over to using ac-ac adapters to avoid the spec).

Some ac-ac adapters are extremely inefficient. We tested an external 35 W ac-ac adapter for a PC subwoofer speaker and the no-load consumption was 2.7 W. That over 5 times the amount proposed by the current EPS specification.

To harmonize with the EU Code of Conduct, which includes ac-ac adapters in their EPS specification.

How to add ac-ac adapters in the test procedure? The test procedure remains exactly the same for measuring the input power. The only difference is that the meters measuring output current and voltage would be set to measure RMS rather than DC values, these values are equivalent, so levels can remain the same. Ac-ac adapter manufacturers already calculate this value in order to list the nameplate output power value of the adapter.

There is no technical reason why battery chargers could not meet the active and no-load levels proposed by the EPA. We feel that in order for the ENERGY STAR EPS specification to be useful and have impact, battery chargers must be included.

The European Union's Code of Conduct for External Power Supplies includes battery chargers. If European manufacturers can meet these requirements, the US should be able to as well. Especially given the fact that European line voltage is 230 VAC, whereas the US is 110 VAC, which makes it easier for US-based products to meet the proposed levels. (The higher the line voltage, the more losses there are).

At the very least, the no-load criteria should remain for battery chargers since battery chargers and external power supplies function exactly the same in no-load mode (that is, neither require power to operate).

Sorry, a lot of questions, but we're trying to understand why the no-load levels are so high and if it's really necessary to raise the ENERGY STAR level from 0.3W to 0.5W.

The 0 to 10 W level should remain at 0.3 W, the data that was used to establish the higher level does not accurately reflect the existing 0 -10 W EPS market. The data presented in the proposal was based primarily on power supplies measured at 230 Vac, whereas the Energy Star proposed levels will only require adapters/chargers to meet the levels based on 110 Vac.

The European Code of Conduct sets the 0 to 15 W level at 0.3 W. Harmonization makes it easier for manufacturers to comply.

It is excessive to require switchmode power supplies to be tested at both 115V and 230V. Linear transformer based power supplies for the US market will only be able to operate at 115Vac input voltage so it would be more appropriate to make this the test condition for switchmode supplies also.

I have some questions regarding the EPS data sample that you presented at the ENERGY STAR EPS meeting in SF. I understand that there were approximately 700 units in the sample. Can you give me the breakdown of:

1.) How many were linears vs. switchers?
2.) How many were "battery chargers" vs. external power supplies
3.) The age of the power supplies
4.) How many of the measurements were done at 115 V vs. 230 V
5.) How many were in the 0-10 W output power range vs. 10-180 W
6.) Which power meter was used to measure the samples